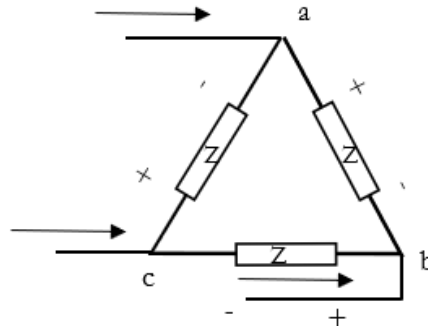


Name: \_\_\_\_\_ UIN: \_\_\_\_\_ Score: \_\_\_\_\_



A delta-connected load ( $\bar{Z} = 36\angle 15^\circ \Omega$ ) is supplied from a 3 $\phi$  voltage source where  $V_{ab} = 18\angle 0^\circ$  kV.

1. What is  $I_{ab}$ ?

$$I_{ab} = \frac{V_{ab}}{Z} = \frac{18 \text{ kV}}{36\angle 15^\circ \Omega} = 500\angle -15^\circ \text{ A}$$

2. What is the three-phase complex power?

$$S = 3V_{ab}I_{ab}^* = 3(18 \text{ kV})(500\angle -15^\circ \text{ A})^* = 26.08 + j6.99 \text{ MVA}$$

3. What is the appropriate impedance for the equivalent wye-connected load?

$$Z_Y = \frac{Z_\Delta}{3} = 12\angle 15^\circ \Omega$$

4. What is  $V_{an}$ , the line-to-neutral phase a voltage?

$$V_{an} = \frac{V_{ab}}{\sqrt{3}\angle 30^\circ} = 10.4\angle -30^\circ \text{ kV}$$